Giung Nam

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Education

Ph.D., Kim Jaechul Graduate School of AI (GPA: 4.24/4.30; Advisor: Juho Lee),
KAIST, Daejeon, Republic of Korea, Sep 2022 to Feb 2026 (expected).

- Thesis: *"Towards a scalable Bayesian deep learning"* (in progress).

- Selected courseworks: *Bayesian Nonparametric Methods for Machine Learning* (Instructor: Juho Lee) and *Deep Learning Theory* (Instructor: Chulhee Yun).

M.S., Kim Jaechul Graduate School of AI (GPA: 4.20/4.30; Advisor: Juho Lee),
KAIST, Daejeon, Republic of Korea, Sep 2020 to Aug 2022.

- Thesis: *"Diversity matters when learning from ensembles"* (Juho Lee served as a committee chair, and Eunho Yang and Sung Ju Hwang served as reviewers).

- Selected courseworks: *Bayesian Machine Learning* (Instructor: Juho Lee), *Deep Learning for Natural Language Processing* (Instructor: Minjoon Seo), *Deep Learning for Computer Vision* (Instructor: Jaegul Choo), and *Machine Learning Theory* (Instructor: Se Young Yun).

B.S., Department of Computer Science and Engineering (GPA: 4.32/4.50),
Korea University, Seoul, Republic of Korea, Mar 2017 to Aug 2020.

- Selected courseworks: *Artificial Intelligence* and *Deep Learning* (Instructor: Hyunwoo J. Kim), *Machine Learning* and *Data Science* (Instructor: Jaewoo Kang), *Information Retrieval* (Instructor: SangKeun Lee), and *Introduction to Bayesian Statistics* (Instructor: Hwan Chung).

Research Interests and Skills

Ph.D. Research, *"Towards a scalable Bayesian deep learning"*, My primary research interest involves investigating efficient methods for conducting Bayesian inference in modern, large-scale deep neural network models. It encompasses model compression techniques such as neural network pruning, knowledge distillation, and quantization.

Software Development, *"Bayes: a Bayesian inference library for JAX"*, Starting in October 2023, I am in the process of developing a Bayesian inference library that is built upon Google's JAX and designed to be compatible with other deep learning libraries. This project is part of my broader research focus on scalable Bayesian deep learning.

Programming Skills, My primary programming language for research is Python, and I prefer JAX and PyTorch libraries for machine learning. I have been actively leveraging the Cloud TPU VM environment for my research since December 2021, thanks to the TPU Research Cloud program. Besides, I am responsible for maintaining the GPU servers within my laboratory at KAIST.

Positions

Technical Research Personnel, Kim Jaechul Graduate School of AI, *Korea Advanced Institute of Science and Technology (KAIST)*, Daejeon, Republic of Korea. Performing military service in accordance with the Constitution of the Republic of Korea and the Military Service Act from Mar 2024 to Feb 2026.

Undergraduate Research Intern, Visual Intelligence Laboratory, *Electronics and Telecommunications Research Institute (ETRI)*, Daejeon, Republic of Korea. Developed AI-based software for face analysis, object detection, and segmentation during Summer and Winter 2019, and Summer 2020.

Undergraduate Research Intern, Research and Engineering Team, *VisualCamp*, Seongnam, Republic of Korea. Developed AI-based software for eye tracking and gaze analysis during Spring 2019.

Honors and Awards

Kim Younghan Global Leader Fellowship, Awarded from *Korea Advanced Institute of Science and Technology (KAIST)* on July 24, 2023, for outstanding academic excellence, research capabilities, and leadership qualities.

Director General's Award, Awarded from *National Institute of Meteorological Sciences (NIMS)* on December 31, 2021, for dedication to the development of an artificial intelligence-based emulator for physics processes in numerical models.

Experiences

Conference Reviewer, Reviewed papers for ICML 2022-2024, NeurIPS 2022-2023, ICLR 2024, and IJCAI 2024 (Recieved Top Reviewer recognition at NeurIPS 2022).

Teaching Assistant, Assisted courses at Korea Advanced Institute of Science and Technology (KAIST): *Deep Learning* (Instructor: Jaesik Choi; Fall 2020), *Machine Learning for AI* (Instructor: Juho Lee; Spring 2021), and *Bayesian Machine Learning* (Instructor: Juho Lee; Fall 2021).

Presentations, Presented papers at poster sessions for NeurIPS 2021 (online; Dec 2021), KAIST AI Workshop 21/22 (Daejeon, Republic of Korea; Jan 2022), ICML 2022 (online; Jul 2022), ICLR 2023 (Kigali, Rwanda; May 2023), ICML 2023 (Honolulu, United States; Jul 2023), Samsung Electronics DS Division (Hwasung, Republic of Korea; Aug 2023), and AI SEOUL 2024 (Seoul, Republic of Korea; Feb 2024).

Publications (*: equal contributions)

9. Moonseok Choi*, Hyungi Lee*, Giung Nam*, and Juho Lee. *"Sparse weight averaging with multiple particles for iterative magnitude pruning"*. **The Twelfth International Conference on Learning Representations (ICLR 2024)**, May 2024 (To appear).

8. Hyungi Lee*, Giung Nam*, Edwin Fong, and Juho Lee. *"Enhancing transfer learning with flexible nonparametric posterior sampling"*. **The Twelfth International Conference on Learning Representations (ICLR 2024)**, May 2024 (To appear).

7. Giung Nam, Byengho Heo, and Juho Lee. *"Lipsum-FT: Robust fine-tuning of zero-shot models using random text guidance"*. **The Twelfth International Conference on Learning Representations**

(**ICLR 2024**), May 2024 (To appear).

6. Eunggu Yun*, Hyungi Lee*, <u>Giung Nam</u>*, and Juho Lee. *"Traversing between modes in function space for fast ensembling"*. **The Fortieth International Conference on Machine Learning (ICML 2023)**, July 2023.

5. Hyungi Lee, Eunggu Yun, <u>Giung Nam</u>, Edwin Fong, and Juho Lee. *"Martingale posterior neural processes"*. **The Eleventh International Conference on Learning Representations (ICLR 2023), Spotlight**, May 2023.

4. <u>Giung Nam</u>*, Sunguk Jang*, and Juho Lee. *"Decoupled training for long-tailed classification with stochastic representations"*. **The Eleventh International Conference on Learning Representations (ICLR 2023)**, May 2023.

3. Hwan-Jin Song, Soonyoung Roh, Juho Lee, <u>Giung Nam</u>, Eunggu Yun, Jongmin Yoon, and Park Sa Kim. *"Benefits of stochastic weight averaging in developing neural network radiation scheme for numerical weather prediction"*. **Journal of Advances in Modeling Earth Systems (JAMES)**, October 2022.

2. <u>Giung Nam</u>, Hyungi Lee, Byeongho Heo, and Juho Lee. *"Improving ensemble distillation with weight averaging and diversifying perturbation"*. **The Thirty-ninth International Conference on Machine Learning (ICML 2022)**, July 2022.

1. <u>Giung Nam</u>*, Jongmin Yoon*, Yoonho Lee, and Juho Lee. *"Diversity matters when learning from ensembles"*. **The Thirty-Fifth Conference on Neural Information Processing Systems (NeurIPS 2021)**, December 2021.